

PAICINES RANCH

Stewardship Profiles in California Agriculture

Environmental Leadership with Water Efficiency, Biodiversity, Nutrient Management and GHG Mitigation

The Paicines Ranch, located in Paicines, California, has been a working ranch since the mid-1800's. It is located in San Benito County approximately 10 miles south of Hollister. The Ranch consists of approximately 7000 acres of rangeland, 550 acres of row crops, and 25 acres of vineyard, all certified organic.

Farmer and agricultural designer Kelly Mulville has been experimenting with the practice of allowing sheep to graze in his vineyards throughout the growing season. Through a trial conducted in Sonoma County in 2009, he was able to compare the results of extended-season planned grazing of sheep with a control site of identical soil, grape variety and rootstock. The control site utilized conventional management practices for the area. Mulville is working on designing a vineyard at Paicines Ranch in San Benito County from the ground up to allow planned grazing throughout the year. The first phase of that project will be 12.5 acres and a second phase will be on a similar amount of acreage. Mulville manages and consults for farms, ranches and vineyards. He studied Ecological Horticulture at UC Santa Cruz and Holistic Management with Allan Savory.

PROBLEM

The owners of Paicines Ranch wanted to establish a vineyard that is as ecologically and economically sustainable as possible. Their goals were to support and increase biodiversity, improve soil health, reduce external inputs, cut costs and grow high quality grapes.

SOLUTION IMPLEMENTATION AND MANAGEMENT

Using a holistic framework and principle-based design process was the first step in addressing these objectives. Grazing is not uncommon in vineyards during the dormant winter season, but is typically avoided during the growing season because sheep will eat grape vines.

ACHIEVEMENTS

- Reduced irrigation requirements by 90%
- Increased crop yield by 1,245 pounds per acre
- Labor reduced by eight hours per acre
- Reduced fertilizer inputs



“We are looking at how we can create a much more sustainable and resilient way of production”

-Kelly Mulville

According to Mulville, allowing sheep to graze year-round would enable growers to reduce many inputs including labor, irrigation, fuel, herbicide and fertilizer use. He also emphasizes that year-round grazing can enhance biodiversity and soil health.

During one experiment to integrate grazing during the growing season, Mulville installed a sheep deterrent system: electrified wires below the fruit level of vines. Mulville recounted his introduction of sheep into the vineyard in late January to the magazine *Acres U.S.A.* By the time buds began breaking, the sheep were trained to steer clear of them. The process "...involves careful management of the sheep," explains Mulville. "You don't keep them anywhere for too long in order to allow adequate recovery for both plants and soil." Throughout the growing season, the deterrent system successfully kept the sheep from interfering with the fruit and canopy vegetation.

In a new planting at Paicines, Mulville is designing the vineyard to be conducive to grazing throughout the year so that a deterrent system won't be necessary. Instead, re-designing the trellis structures to raise the fruiting level will be the main measure taken to keep the sheep from eating the vines. Mulville also plans to increase the overall plant diversity of the site. "The biodiversity in this vineyard will be much greater than the grasslands it is going into. You will notice more shrubs, flowers and pollinator plants – a lot of them will be native – and it will be highly conducive to beneficial insects," he said. "Our intention is for it to be a lot more aesthetically pleasing as well as biologically functional." In a presentation entitled "A New Approach to Viticulture through Holistic Management" at California Climate & Agriculture Network's annual summit, Mulville estimated that a vineyard the size of the one being developed at Paicines Ranch necessitates 25 tractor passes a year; his objective is to reduce that number to two or three passes.

CHALLENGES/OBSTACLES OVERCOME

The principal challenge to the inclusion of grazing during the growing months in a vineyard is to stop sheep from eating the vines.

Mulville stresses that addressing that issue boils down to designing vineyards so that they benefit from grazing. Traditionally, he says, "We have designed around equipment, and the approach I take is to design for biology and ecological processes. So, it is a change in thinking." To change that thinking, Mulville said vineyard owners and operators have to be convinced adding longer-term grazing is worthwhile, and that will likely require more examples demonstrating the value of the practice.

Upfront costs are another challenge to the spread of extended-season grazing in the wine industry. The approximate cost for an electrified deterrent system varies from \$800 to \$1,700 per acre (depending on row spacing) and should last at least 18 years. Once a system is installed cost savings average \$450 dollars per year, so the payback for these systems can vary between two to five years.

STEWARDSHIP PRACTICES



Water Efficiency



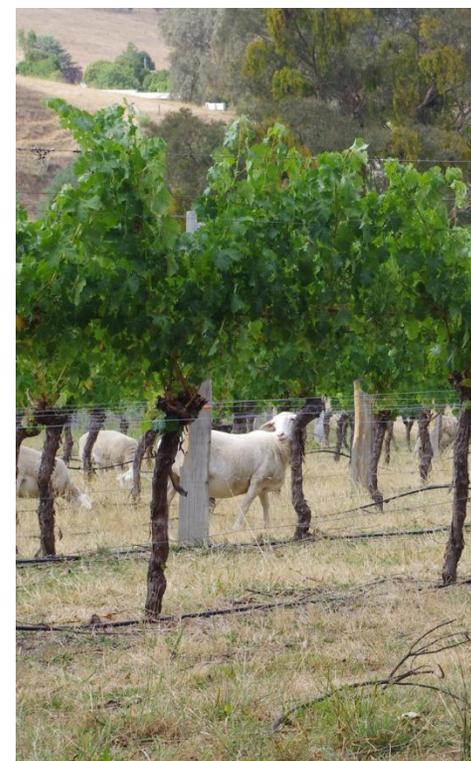
Biodiversity



Nutrient Management



GHG Mitigation



A number of options exist for bringing sheep into vineyards, which include borrowing or renting sheep as well as seasonal buying or developing one's own permanent flock. Mulville posits that owners and operators of small vineyards could team up with their neighbors to share upfront costs. Overall, he argues, the upfront costs would result in savings later on, and from any proceeds from the livestock. "Where before you only had one enterprise, now we are taking the biologically resources and turning those into another enterprise that is making a more resilient system," says Mulville.



MEASURING SUCCESS

Mulville measured the outcomes of his experiment at The Ranch at Soda Rock to illustrate the potential of including grazing during the growing season. In his CalCAN presentation, Mulville reported the practice reduced irrigation requirements by 90 percent compared to the conventionally farmed adjacent vineyard. From the prior year, there was an 80 percent drop in irrigation. "We kept the ground cover throughout the year, which I think is part of the reason we had that savings in water," said Mulville at the presentation.

The in-season grazing improved yield by 1,245 pounds per acre, and Mulville pointed out in the Acres U.S.A. article that the grapes produced led to excellent wine. Because grazing the sheep eliminating the need for hand suckering, the need for labor was reduced by eight hours per acre. Fertilizer inputs were lessened because the sheep converted plant material into urine and manure, and the sheep did the chores tractors often do, diminishing the reliance on mechanization. "The way we design and manage this makes labor and fertilizer costs dramatically less. It is not so much about yield. It is about profitability," said Mulville.

For more information about the stewardship practices discussed in this profile, please contact the farmer directly. You can reach Kelly Mulville by phone at (831) 628-0288 or by email to kmulville@gmail.com

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